

THE IDENTITY OF *PELOCORIS BIIMPRESSUS* MONTANDON AND
SYNONYMY OF *PELOCORIS* SPECIES IN THE SOUTHWESTERN
UNITED STATES (HETEROPTERA: NAUCORIDAE)

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Abstract. — *Pelocoris shoshone amargosus* La Rivers 1956 is synonymized with *Pelocoris biimpessus* Montandon 1898, NEW SYNONYMY; a lectotype is designated for the latter. *Pelocoris femoratus* (Palisot de Beauvois) 1820 is compared to *P. biimpessus* and discussed, and a neotype is designated.

Key Words: Insecta, Heteroptera, Naucoridae, synonymy

A recent review (JTP in prep.) of the genus *Pelocoris* Stål revealed that *P. biimpessus* Montandon is the most common species in northern Mesoamerica with a range extending from Guatemala northward into Texas, Louisiana, Arizona, Nevada and California, and that *Pelocoris shoshone amargosus* La Rivers 1956 is a synonym.

To characterize species of this difficult genus, several morphological characters have been found to be useful in addition to those used by La Rivers (1948, 1956) and Nieser (1975) (e.g. shape of male ventral laterotergites VI and VII, shape of female ventral laterotergite VI, sculpturing of male tergite V, dentition of female ovipositor lobes, shape and setiferation of male parameres). The characters used by La Rivers (loc. cit.) to separate species include the morphology of the female sternum VII (subgenital plate), male aedeagus, male dorsal aedeagal plate, coloration of dorsum, and body size; Nieser added the coloration of the fore femora and hemelytra, and development of spines on the connexiva. Some, but not all, of these

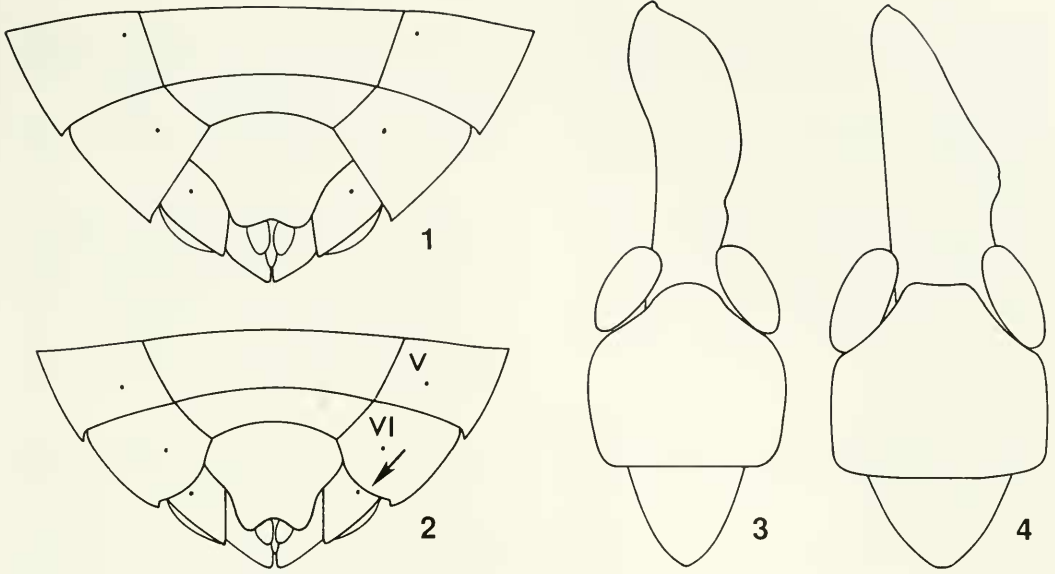
characters are used below in distinguishing North American species.

This contribution is intended to clarify the status of the *Pelocoris* species of the central and southwestern United States, from Louisiana and Texas westward; therefore, the voluminous Mexican and Mesoamerican material in the Polhemus Collection is not treated here, except for a few examples. The resolution of *Pelocoris* species-group problems in the southeastern United States (particularly Florida), and Mesoamerica plus northern South America are beyond the scope of this paper, and will be treated in future publications.

Pelocoris biimpessus biimpessus
Montandon

Pelocoris biimpessus Stål in litt.; see Montandon 1898: 285, and Champion 1901: 360. Manuscript name, unavailable.

Pelocoris biimpessus Montandon 1898. Bull. Soc. Sci. Buc.-Roum. 7: 285. Lectotype, male, here designated, Mexico, in Stockholm Museum.



Figs. 1-4. 1, Abdominal venter of female *Pelocoris biimpressus*. 2, Abdominal venter of female *Pelocoris femoratus* (arrow, posterior margin of laterotergite VI). 3, Male genitalia of *Pelocoris biimpressus*. 4, Male genitalia of *Pelocoris femoratus*.

Pelocoris biimpressus, Van Duzee 1916.
Check List Hem., p. 52.

Pelocoris shoshone amargosus La Rivers
1956. Wasmann J. Biol. 14: 155.
NEW SYNONYMY.

Diagnosis.—Females of *P. biimpressus* can easily be distinguished from those of *P. femoratus* by the shape of the posterior margin of ventral laterotergite VI: straight in the former (Fig. 1), distinctly curved in the latter (Fig. 2, arrow). Males can be distinguished by the shape of the aedeagus (Figs. 3, 4) (see also La Rivers 1948, Figs. 1 M, N). *Pelocoris femoratus* ordinarily is somewhat smaller in stature and lighter in color than is *P. biimpressus*, which is particularly noticeable in the region where the species co-occur. Both color and size are extremely variable over the larger geographic range of each species and indeed even within a single series and are thus unreliable as key characters over most of the range. Possibly, with better methods to discriminate species, each of these taxa will be further subdivided, as they are morphologically polytypic com-

pared to South American species known to us. The ranges overlap only in Texas and Louisiana as far as is now known, but future collecting will undoubtedly increase the known range of both species.

Distribution.—*P. biimpressus* occurs as far south as Guatemala (Polhemus, in prep.); Montandon (1898) reported *biimpressus* from Guatemala, Mexico and Uruguay, but his diagnosis was based primarily on color thus his records are potentially unreliable. *P. poeyi*, as defined by Nieser (1975), occurs in northern South America; Sites (1990) has recently reported that it ranges from Cuba through the Antilles into South America to Ecuador, therefore it is quite possible that the ranges of these two species overlap. Unfortunately the species are difficult to identify. Although there is a slight difference in the male genitalia, the females are very similar in appearance, including the shape of female sternum VI.

Discussion.—Montandon (1898) and Champion (1901) treated *biimpressus* as a variety of *femoratus*, and did not discuss the locality of any type material. Van Duzee

(1916, 1917), Hungerford (1920), La Rivers (1948, 1971) and Polhemus and Polhemus (1988) treated *biimpessus* as a valid species without significant comment. La Rivers (1948) briefly discussed the species in connection with his proposal of *P. shoshone* from warm springs in Nevada, but in spite of the realization that *P. biimpessus* was a North American species, he made no attempt to recognize it or compare it with his *P. shoshone*, and as a consequence described a synonym.

During a survey of the collections of Europe, JTP noted a syntype series of *Pelocoris biimpessus* consisting of two specimens in the Natural History Museum at Stockholm. This is Stål's (1876) manuscript species referred to by Montandon (1898) and Champion (1901). Through the kindness of Dr. Per Lindskog we have been able to study these two females. The first of these bears the following labels: "Mexico"; "Sallé"; "biimpessus Stål" handwritten; "Typus" on red card. Without a previous lectotype designation, this is not a holotype, but only a syntype; we here designate this female as lectotype. The second female bears the labels: "Mexico"; "Stål"; "Paratypus" on red card; this specimen is designated a paralectotype.

Material examined.—UNITED STATES: Arizona: Santa Cruz Co.: 1 male, 1 female, cattle pond 1 mi. W. of Peña Blanca L., 17-X-78, C. Olson (JTTC). California: San Bernardino Co.: many males and females, Saratoga Springs, CL 278, 21-II-64, J. T. Polhemus (JTTC); 4 males, 2 females, Saratoga Springs, 27-I-57, Menke & Stange (JTTC); 13 males, 8 females, Death Valley Nat. Mon., Saratoga Springs, 22-XI-90, J. A. Back (UMC); 6 males, 2 females, Saratoga Springs, Death Valley Nat. Mon., El. 61 m, water temp. 28°C, CL 2902, 22-VII-92, J. T. & D. A. Polhemus (JTTC). Inyo Co.: many males and females, warm spring near Tecopa, CL 280 22-II-64, J. T. Polhemus (JTTC); 1 male, 1 female, Tecopa Hot Springs, El. 533 m, water temp. 37°C, CL 2903, 29-VI-93, J. T. & D. A. Polhemus

(JTTC). Louisiana: Iberville Par.: 1 female, St. Gabriel Exp. Sta., 26-IX-84, C. B. Barr (JTTC); Tangipahoa Par.: 1 female, 11-III-77, J. E. Barr Sr. (WDSC). Nevada: Nye Co.: many males and females, stream below Point of Rock Springs, Ash Meadows, CL 269, 20-II-64, J. T. Polhemus (JTTC); 3 males, 3 females, 1 nymph, Purgatory Well, Ash Meadows NWR, El. 716 m, water temp. 33.5°C, CL 2718, 22-VII-92, J. T. & D. A. Polhemus (JTTC); 3 males, Mary Scott Spring, Ash Meadows NWR, El. 716 m, water temp. 28°C, CL 2719, 22-VII-92, J. T. & D. A. Polhemus (JTTC); 1 female, Shaft/Chalk Spring, Ash Meadows NWR, no date, D. Threlloff (JTTC); 2 females, Claypit Spring, Ash Meadows NWR, no date, D. Threlloff (JTTC). Texas: Victoria Co.: 1 female, det. *Pelocoris biimpessus*, Montandon 1909, Victoria, J. D. Mitchell (USNM). GUATEMALA: Progreso: 2 males, 1 female, Jutiapa, pond, # 632, 23-VI-1957, D. R. Lauck (JTTC). MEXICO: Jalisco: 1 female, Atentique, 5-XII-48, E. S. Ross (JTTC); 2 males, S. of Guadalajara, pond, # 671, 11-VIII-1957, D. R. Lauck (JTTC). Sonora: 1 male, 1 female, Rio Sonora, E. of Ures, CL 714, 3-III-1975, J. T. Polhemus (JTTC). Veracruz: 3 males, 4 females, Rio Blanco, La Tinaja, CL 504, 4-I-1971, J. T. & M. S. Polhemus (JTTC); 3 males, 2 females, S. of Guiterrez Zamora, CL 519, 7-I-1971, J. T. & M. S. Polhemus (JTTC). State unknown: 1 female, Sallé (lectotype), 1 female (paralectotype) (SMNH) (see discussion above).

***Pelocoris biimpessus shoshone* La Rivers,
NEW COMBINATION**

Pelocoris shoshone La Rivers 1948. Ann. Entomol. Soc. Am. 61: 371.

Pelocoris shoshone shoshone La Rivers 1956. Wasmann J. Biol. 14: 155.

The subspecies *P. shoshone shoshone* was characterized by La Rivers as being smaller, of lighter color, and with a lighter colored yellowish scutellum in comparison to *P. shoshone amargosus* (now *P. biimpessus*

biimpressus), which is dark in coloration and typically has a brownish black scutellum except the yellowish tip. These differences have not been seen to intergrade in the populations studied so far, therefore the subspecies status is retained for the present. However, the variation in size and color over the range of *P. biimpressus* in Mexico and Mesoamerica encompasses both forms described by La Rivers under *P. shoshone*, and the variation shows no clear geographic separation except for the consistently lighter colored scutellum of *P. b. shoshone*, thus the subspecies status of these taxa may eventually be suppressed.

In California and Nevada, La Rivers' subspecies *amargosus* is restricted to springs in the Amargosa River system proper, which begins in the Bullfrog Hills and on Pahute Mesa northwest of Beatty, Nevada and flows (during wet periods) into the southern end of Death Valley, whereas at all other localities, including Grapevine Springs at the north end of Death Valley, the White River system, and Railroad Valley, the only form so far seen is the subspecies *shoshone*. The Grapevine Springs drain into the same endorheic basin as the Amargosa River, but are separated by a highly saline sink in central Death Valley. The presence of *P. biimpressus biimpressus* at the south end of the valley, and *P. biimpressus shoshone* at the north end indicates that in the past these areas were connected to separate drainage systems, but more recent tectonic downwarping has caused them to flow to a common terminus.

The localities given below are only for *P. biimpressus shoshone* in the United States.

Material examined.—UNITED STATES: California: Inyo Co.: 1 female, Grapevine Springs, nr. Scotty's Castle, Death Valley Nat. Mon., D. Threlloff, II-93 (JTTC); 1 male, 1 female, Grapevine Springs, nr. Scotty's Castle, El. 838 m, water temp. 35°C, CL 2901, 28-VI-93, J. T. & D. A. Polhemus (JTTC). Nevada: Nye Co.: 7 males, 5 females, 10 nymphs, Railroad Valley, Duckwater, Big Warm Spring, El. 1768 m, water

temp. 33°C, CL 2893, 27-VI-93, J. T. & D. A. Polhemus (JTTC); many males and females, Railroad Valley, Duckwater, Little Warm Spring, El. 1768 m, water temp. 33°C, CL 2894, 27-VI-93, J. T. & D. A. Polhemus (JTTC). Lincoln Co.: 6 males, 1 female, Ash Warm Springs, elev. 1143 m, water temp. 36°C, CL 2711, 21-VII-92, J. T. & D. A. Polhemus (JTTC); 2 males, 4 females, 6 nymphs, Ash Springs, 26-27-VIII-89, algal mats in slow water, J. A. Back (UMC). Clark Co.: 12 males, Moapa Warm Springs, N. of Moapa, El. 550 m, water temp. 32°C, CL 423, 16-IV-68, J. T. Polhemus (JTTC); 4 males, 14 nymphs, Warm Springs, 32°C, algal mats in slow water, 27-VIII-89, J. A. Back (UMC); 2 males, 2 females, 13 mi. S. Overton, Blue Point Spring, 12-XII-86, W. D. Shepard (WDSC, JTTC).

Pelocoris femoratus femoratus
(Palisot de Beauvois)

Naucoris femorata Palisot de Beauvois 1820.

Ins. Afr. Amer. 14: 237, pl. 20, fig. 4.
Type-locality "États-Unis d'Amérique."
Neotype, male, New Jersey, here designated.

Pelocoris femoratus, Stål 1876. Svenska Vetensk. Akad. Handl. 14: 144.

Naucoris poeyi, Uhler 1876. Bull. U. S. Geol. Surv. Terr. 1: 71. Misidentification.

Pelocoris femoratus, Montandon 1898. Bull. Soc. Sci. Buc.-Roum. 7: 284–286. Diagnosis, synonymy.

Pelocoris carolinensis, Hungerford 1927. Bull. Brook. Entomol. Soc. 22: 77. Life history. Misidentification.

Distribution.—*Pelocoris femoratus* apparently is restricted to the eastern part of the United States and Canada. We have not yet seen specimens from Mexico, although it is common in eastern Texas (Sites and Polhemus, in press). The distribution given by Polhemus and Polhemus (1988) included extralimital records from the literature that must now be reconfirmed. Montandon (1898) cited localities in the United States and Panama; the latter record certainly per-

tains to another species. The infraspecific *Pelocoris femoratus balius* La Rivers is known from only Florida.

A neotype is here designated in order to stabilize the nomenclature of *Naucoris femoratus* Palisot de Beauvois, as the type material has never been located and is presumed lost. It is a male from New Jersey, Somerset Co., Basking Ridge, CL 384, 31 May 1967, J. T. Polhemus, in USNM. The type locality is here restricted to New Jersey.

Distributional data for this species was given by Polhemus & Polhemus (1988), and amplified by Sites and Polhemus (in press) for the state of Texas where the ranges of *P. biimpressus* and *P. femoratus* overlap, therefore these data are not repeated here.

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